REMARKS

Herein, the "Action" or "Office Action" refers to the Office Action dated 9/24/2004.

Applicant respectfully requests entry of the following remarks and reconsideration of the subject application. Applicant respectfully requests entry of the amendments herein. The remarks and amendments should be entered under 37 C.F.R. §1.116 as they place the application in better form for appeal, or for resolution on the merits.

Applicant respectfully requests reconsideration and allowance of all of the claims of the application. Claims 1, 4-9, 12-24, 26-28, 35-41 are presently pending. Claims amended herein are 1, 4-6, 9, 12, 14, 18-22, 24, 26-28, 35, 38, and 39. Claims withdrawn or cancelled herein are 2, 3, 10, 11, 25, 29-34. New claims added herein are none.

Canceled Claims

Applicant voluntarily withdraws claims 30-34 from this application. Applicant does not do this for any reason related to patentability. Instead, Applicant plans to subsequently file a continuation application directed towards the subject matter of claims 30-34.

Formal Objections

Claim Objections

The Office objects to claim 9 for an informality involving an apparent typographical error. Applicant amends that claim to correct the informality.

Formal Claim Rejections

Claim Rejections under §112

The Office rejects claim 16 (and the intervening claims) under § 112, 1st ¶, as failing to comply with the "written description" requirement. Applicant traverses the rejection.

More particularly, the Office indicates that the claim contains subject matter which is "not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s)...had possession of the claimed invention." More particularly still, the Office indicates that the step of "assigning each of the multiple watermarks to each of the possible discrete values for at least a portion of the covert message" is not supported in the Application on page 27, lines 18 through page 29, line 7.

Applicant respectfully disagrees with the Office's assertion. Instead, Applicant submits that pp. 27-29 of the Application does, indeed, support the step of "assigning each of the multiple watermarks to each of the possible discrete values for at least a portion of the covert message."

To show that support exists, Applicant reproduces text and table from p. 28, line 4 to p. 29, line 7 here:

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The table below illustrates the relationship between each of sixteen watermarks (where N=4; thus $2^N=16$) and each chip of four bits (where N=4) of a covert message:

Chip of Covert Message	2^4 Watermarks
0000	watermark 1
0001	watermark 2
0010	watermark 3
0011	watermark 4
0100	watermark 5
0101	watermark 6
0110	watermark 7
0111	watermark 8
1000	watermark 9
1001	watermark 10
1010	watermark 11
1011	watermark 12
1100	watermark 13
1101	watermark 14
1110	watermark 15
1111	watermark 16

When the chip of the covert message is "1101," then "watermark 14" is encoded within the signal. Conversely, when the detector detects "watermark 14," it knows that the chip of the covert message is "1101." The detector can recognize the detected watermark to be one the sixteen watermarks because its pattern generator generates the sixteen watermarks based upon the same key as the encoder used.

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Applicant submits that the above cited text from the Application reasonably conveys to one skilled in the relevant art that the inventor(s)…had possession of the step of "assigning each of the multiple watermarks to each of the possible discrete values for at least a portion of the covert message." Accordingly, Applicant asks the Office to withdraw this rejection.

Substantive Claim Rejections

Claim Rejections under §102 and §103

The Office rejects at least some of the pending claims under §102 and/or §103. For the reasons set forth below, the Office has not shown that cited references anticipate (under §102) the rejected claims. For the reasons set forth below, the Office has not made out a *prima facie* case of obviousness (under §103). Accordingly, Applicant respectfully requests that the rejections be withdrawn and the case be passed along to issuance.

The Office's rejections are based upon the following reference:

- **Shur:** *David Shur*, US Patent No. 6,330,672;

- **Girod:** *Girod et al.*, US Patent No. 5,809,139;

- **Wakasu:** *Wakasu et al.*, US Patent No. 6,259,801;

- **Zhao:** *Zhao et al.*, "A Generic Digital Watermarking Model", Computer. & Graphics, Vol. 22, No. 4, pp. 397-403 (1998);

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Overview of the Application

The Application describes techniques directed towards a watermarking technology for inserting and detecting watermarks in digital signals, such as a music clip. The watermark identifies the content producer, providing a signature that is embedded in the digital signal and cannot be removed. The watermark is designed to survive all typical kinds of processing, including compression, equalization, D/A and A/D conversion, recording on analog tape, and so forth. It is also designed to survive malicious attacks that attempt to remove or modify the watermark from the signal, including changes in time and frequency scales, pitch shifting, and cut/paste editing.

In one described implementation, a watermarking system employs covert channel encoder to layer an additional information data message on top of the watermark. Thus, an informational message is imposed upon the existing watermark encoded in a signal.

Cited References

The Office cites **Shur** as its primary references in its anticipation-based rejections and its obviousness rejections. The Office cites **Girod** as its secondary reference in its obviousness rejections. The Office cites **Wakasu** as its tertiary reference in its obviousness rejections.

Shur

Shur describes a technology for inserting a digital watermark into protected information. It includes a perceptual coder for coding an information signal representative of the protected information, a watermark location selector

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responsive to the perceptual coder for selecting a location for inserting a digital watermark, a digital watermark generator for generating a digital watermark and a quantizer of the perceptual coder responsive to the digital watermark detector and the watermark location selector for inserting a digital watermark at selected locations within an output bitstream including the perceptually coded information signal.

Girod

Girod describes a technology for watermarking of a digital video signal in a compressed form, thereby allowing watermarking of a pre-compressed video sequence without requiring the decoding and re-coding of the signal. The watermark signal is a sequence of information bits which has been modulated by a pseudo-random noise sequence to spread it in the frequency domain. The video signal is transform coded, preferably with a discrete cosine transform, and a watermark signal, which has been transform coded using the same type of transform, is added to the coded video signal.

The system also includes bitstream control to prevent an increase in the bit rate of the video signal. This allows the system to be used with transmission channels having strict bit rate constraints. For each transform coefficient of the video signal, the number of bits necessary to encode the watermarked coefficient is compared to the number of bits necessary to encode the unwatermarked coefficient. If more bits are required to transmit a watermarked coefficient than to transmit the corresponding unwatermarked coefficient, the watermarked coefficient is not output, and the unwatermarked coefficient is output in its place.

When watermarking interframe coded data, a drift compensation signal may be used to compensate for the accumulating variations in the decoded video signal stored at the receiver. The system may also include an encryption/decryption capability, with the watermarking apparatus located at either the transmitting or receiving end of the transmission channel.

Wakasu

Wakasu describes a watermarking technology where an image is divided into blocks, and different electronic watermark data are embedded into every block using a DCT transformer, electronic watermark data inserter, and IDCT transformer. At that time, reference is made to an electronic watermark data insertion position table and electronic watermark data table (106) which specify that which electronic watermark data is to be inserted into which block of the image.

Anticipation Rejections

Based upon Shur

The Office rejects claims 1-15 and 18-29 under USC § 102(e) as being anticipated by **Shur**. Applicant respectfully traverses the rejections of these claims. Based on the reasons given below, Applicant asks the Office to withdraw its rejection of these claims.

Claim 1

With the cited portions of **Shur** provided in brackets, this amended claim recites (in part):

- imposing a discrete value of the second data pattern over one or more values of the first data pattern, **[col. 2 and col. 3, lines 40-67]** wherein the imposing is carried out by performing a Boolean operation with a discrete value of the second data pattern and multiple discrete values of the first data pattern; **[col. 10 and Figs. 1a and 1b]**

The Office indicates that **Shur** discloses "wherein the imposing is carried out by performing a Boolean operation with a discrete value of the second data pattern and *multiple* discrete values of the first data pattern" (as recited by amended claim 1 and with emphasis added).

Applicant submits that Shur never discloses this. For example and in particular, Shur does not disclose performance of a "Boolean operation" for "a discrete value" of one pattern with "multiple discrete values" of the other."

As shown above, **Shur** does not disclose all of the claimed elements and features of the claim. Accordingly, Applicant asks the Office to withdraw its rejection of this claim.

Claims 4-7

These claims ultimately depend upon independent claim 1. As discussed above, claim 1 is allowable.

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In addition to its own merits, each of these dependent claims is allowable for the same reasons that its base claim is allowable. Applicant submits that the Office withdraw the rejection of each of these dependent claims because its base claim is allowable.

Claims 8, 18, 20, 22, and 23

The Office indicates that these claims recite the same limitations as the rejected claim 1. Therefore, these claims are rejected for the same rationale as the rejection of claim 1. If the Office's assertion is true, then Applicant submits that these claims are allowable for the same rationale given above in Applicant's response to the rejection of claim 1.

Claim 9, 13, 19, and 21

Citing col. 11, lines 25-55 of **Shur**, rejects this claim. This amended claim recites:

- receiving [receive] a digital signal, the signal having an a watermark encoded therein, the watermark being an encoded data pattern of discrete values is encoded into the signal in one of multiple discrete states, the encoded data pattern representing multiple data patterns comprising an original watermark data pattern and a covert data pattern;

- extracting [extract] a discrete value of the covert data pattern from a plurality of values of the encoded data pattern, wherein the extracting is carried out decoding a single discrete value of the

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covert data pattern from the digital signal based upon a state of a multiple discrete values of the encoded data pattern.

The cited portion of **Shur** does not disclose a watermark "encoded into the signal in one of *multiple* discrete states." Furthermore, it does nto disclose the extraction being "carried out decoding a *single* discrete value of the covert data pattern from the digital signal based upon a state of a *multiple* discrete values of the encoded data pattern."

As shown above, **Shur** does not disclose all of the claimed elements and features of the claim. Accordingly, Applicant asks the Office to withdraw its rejection of this claim.

Claim 12

This claim ultimately depends upon independent claim 9. As discussed above, claim 9 is allowable.

In addition to its own merits, this dependent claim is allowable for the same reasons that its base claim is allowable. Applicant submits that the Office withdraw the rejection of this dependent claim because its base claim is allowable.

Claim 24

The Office indicates that this independent claim is rejected for the same rationale as the rejection of claim 1. If the Office's assertion is true, then Applicant submits that these claims are allowable for the same rationale given above in Applicant's response to the rejection of claim 1.

Claims 26, 27, and 28

These claims ultimately depend upon independent claim 24. As discussed above, claim 24 is allowable.

In addition to its own merits, each of these dependent claims is allowable for the same reasons that its base claim is allowable. Applicant submits that the Office withdraw the rejection of each of these dependent claims because its base claim is allowable.

Claim 14

With the cited portions of **Shur** provided in brackets, this amended claim recites:

> A method for encoding a watermark with a covert message into a digital audio signal, wherein binary bits of the watermark may be encoded into the signal in multiple states [col. 3, lines 40-65 and col. 11, lines 3-6], the method comprising encoding multiple bits of the watermark into the digital signal into a state that indicates a single discrete value of the covert message. [col. 3, lines 40-65 and col. 4]

The cited portion of **Shur** does not disclose a "encoding multiple bits of the watermark into the digital signal into a state that indicates a *single* discrete value of the covert message."

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As shown above, **Shur** does not disclose all of the claimed elements and features of the claim. Accordingly, Applicant asks the Office to withdraw its rejection of this claim.

Claim 15

This claim ultimately depends upon independent claim 14. As discussed above, claim 14 is allowable.

In addition to its own merits, this dependent claim is allowable for the same reasons that its base claim is allowable. Applicant submits that the Office withdraw the rejection of this dependent claim because its base claim is allowable.

Obviousness Rejections

Lack of *Prima Facie* Case of Obviousness (MPEP § 2142)

Applicant disagrees with the Office's obviousness rejections. Arguments presented herein point to various aspects of the record to demonstrate that all of the criteria set forth for making a *prima facie* case have not been met.

Based upon Shur, Girod, and Wakasu

The Office rejects 16 and 17 under USC § 103(a) as being unpatentable over **Shur** in view of **Girod** in view of **Wakasu**. Applicant respectfully traverses the rejections of these claims. Applicant asks the Office to withdraw its rejection of these claims.

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Claim 16

This amended claim recites:

- generating multiple watermarks;

- assigning each of the multiple watermarks to each of the possible discrete values for at least a portion of the covert message;

- selecting a watermark that corresponds to an actual discrete value of at least a specific portion of the covert message;

- without encoding any portion of the covert message itself into a digital signal, encoding the selected watermark into the digital signal.

The Office does not specific portions of the cited references for the teaching of each element and feature. Furthermore, in its explanation as to why the Office believes that this claim is obvious in view of the combination of **Shur**, **Girod**, and **Wakasu**, the Office indicates that the disclosure of **Zhao** is also included. See lines 1-3 on p. 10 of the Action. Applicant is unsure what specific disclosures that the Office is combining for its obviousness rejection. Accordingly, Applicant asserts that the Office has not met its *prima facie* burden.

Applicant also asks the Office to provide a precise list of the references that is combining to generate a combination that it asserts obviates this claim. Furthermore, Applicant asks the Office to particular point to the portions of the cited references that disclose the recited features and elements.

Furthermore, the Office has not shown any reference or combination that discloses "without encoding any portion of the covert message itself into a digital signal, encoding the selected watermark into the digital signal."

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As shown above, the combination of the cited references does not disclose all of the claimed elements and features of the claim. Accordingly, Applicant asks the Office to withdraw its rejection of this claim.

Claim 17

This claim ultimately depends upon independent claim 16. As discussed above, claim 16 is allowable.

In addition to its own merits, this dependent claim is allowable for the same reasons that its base claim is allowable. Applicant submits that the Office withdraw the rejection of this dependent claim because its base claim is allowable.

Based upon Shur and Girod

The Office rejects claims 35-41 under USC § 103(a) as being unpatentable over **Shur** in view of **Girod**. Applicant respectfully traverses the rejections of these claims. Applicant asks the Office to withdraw its rejection of these claims.

While the Office indicates that these claims are obvious in light of the combination of **Shur** and **Girod**, it does not cite any specific portions of these references to support is assertion and show where there is objective evidence to combine these references.

Instead, the Office indicates that these claims recite "the same inventive concept as claims 1, 3-7, [and] 16." It states that these claims are rejected on the same rationale as the rejection of claims 1 and 16.

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Applicant asks the Office to particular point to the portion of **Shur** and **Girod** that disclose the recited features and elements. Without such a showing, Applicant asks the Office to withdraw its rejection of these claims.

Dependent Claims

In addition to its own merits, each dependent claim is allowable for the same reasons that its base claim is allowable. Applicant submits that the Office withdraw the rejection of each dependent claim where its base claim is allowable.

Conclusion

All pending claims are in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the application. If any issues remain that prevent issuance of this application, the Office is urged to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

Dated: 11-30-04   By: _____

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